

ABSTRACT

The present invention relates to a nucleic acid enzyme which has a sensor site and a cleavage active site, wherein the nucleic acid enzyme exhibits a cleavage activity towards a target RNA only when the target RNA binds to the cleavage active site while another RNA, DNA or protein binds to the sensor site, and use of the enzyme. According to the present invention, the nucleic acid enzyme has an RNA-cleaving activity by which harmful cells such as infected or cancerated cells can be killed selectively and efficiently. Furthermore, the nucleic acid enzyme has an RNA-cleaving ability that can be regulated by a cell-specifically or time-specifically expressed RNA, DNA or protein or by an artificially introduced RNA, DNA or protein.